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<110> SLAUGENHAUPT, SUSAN  
GUSELLA, JAMES F.

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<140> 10/041,856

<141> 2002-01-07

<150> 60/260,080

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<170> PatentIn Ver. 2.1

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 <212> PRT  
 <213> Homo sapiens

<400> 3  
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 20 25 30  
 Val Leu Ile Gly Ser Glu His Gly Leu Ile Glu Val Asp Pro Val Ser  
 35 40 45  
 Arg Glu Val Lys Asn Glu Val Ser Leu Val Ala Glu Gly Phe Leu Pro  
 50 55 60  
 Glu Asp Gly Ser Gly Arg Ile Val Gly Val Gln Asp Leu Leu Asp Gln  
 65 70 75 80  
 Glu Ser Val Cys Val Ala Thr Ala Ser Gly Asp Val Ile Leu Cys Ser  
 85 90 95  
 Leu Ser Thr Gln Gln Leu Glu Cys Val Gly Ser Val Ala Ser Gly Ile  
 100 105 110  
 Ser Val Met Ser Trp Ser Pro Asp Gln Glu Leu Val Leu Leu Ala Thr  
 115 120 125  
 Gly Gln Gln Thr Leu Ile Met Met Thr Lys Asp Phe Glu Pro Ile Leu  
 130 135 140



Glu	Gln	Gln	Ile	His	Gln	Asp	Asp	Phe	Gly	Glu	Ser	Lys	Phe	Ile	Thr	145	150	155	160
Val	Gly	Trp	Gly	Arg	Lys	Glu	Thr	Gln	Phe	His	Gly	Ser	Glu	Gly	Arg	165	170	175	
Gln	Ala	Ala	Phe	Gln	Met	Gln	Met	His	Glu	Ser	Ala	Leu	Pro	Trp	Asp	180	185	190	
Asp	His	Arg	Pro	Gln	Val	Thr	Trp	Arg	Gly	Asp	Gly	Gln	Phe	Phe	Ala	195	200	205	
Val	Ser	Val	Val	Cys	Pro	Glu	Thr	Gly	Ala	Arg	Lys	Val	Arg	Val	Trp	210	215	220	
Asn	Arg	Glu	Phe	Ala	Leu	Gln	Ser	Thr	Ser	Glu	Pro	Val	Ala	Gly	Leu	225	230	235	240
Gly	Pro	Ala	Leu	Ala	Trp	Lys	Pro	Ser	Gly	Ser	Leu	Ile	Ala	Ser	Thr	245	250	255	
Gln	Asp	Lys	Pro	Asn	Gln	Gln	Asp	Ile	Val	Phe	Phe	Glu	Lys	Asn	Gly	260	265	270	
Leu	Leu	His	Gly	His	Phe	Thr	Leu	Pro	Phe	Leu	Lys	Asp	Glu	Val	Lys	275	280	285	
Val	Asn	Asp	Leu	Leu	Trp	Asn	Ala	Asp	Ser	Ser	Val	Leu	Ala	Val	Arg	290	295	300	
Leu	Glu	Asp	Leu	Gln	Arg	Glu	Lys	Ser	Ser	Ile	Pro	Lys	Thr	Cys	Val	305	310	315	320
Gln	Leu	Trp	Thr	Val	Gly	Asn	Tyr	His	Trp	Tyr	Leu	Lys	Gln	Ser	Leu	325	330	335	
Ser	Phe	Ser	Thr	Cys	Gly	Lys	Ser	Lys	Ile	Val	Ser	Leu	Met	Trp	Asp	340	345	350	
Pro	Val	Thr	Pro	Tyr	Arg	Leu	His	Val	Leu	Cys	Gln	Gly	Trp	His	Tyr	355	360	365	
Leu	Ala	Tyr	Asp	Trp	His	Trp	Thr	Thr	Asp	Arg	Ser	Val	Gly	Asp	Asn	370	375	380	
Ser	Ser	Asp	Leu	Ser	Asn	Val	Ala	Val	Ile	Asp	Gly	Asn	Arg	Val	Leu	385	390	395	400
Val	Thr	Val	Phe	Arg	Gln	Thr	Val	Val	Pro	Pro	Pro	Met	Cys	Thr	Tyr	405	410	415	
Gln	Leu	Leu	Phe	Pro	His	Pro	Val	Asn	Gln	Val	Thr	Phe	Leu	Ala	His	420	425	430	
Pro	Gln	Lys	Ser	Asn	Asp	Leu	Ala	Val	Leu	Asp	Ala	Ser	Asn	Gln	Ile	435	440	445	

Ser	Val	Tyr	Lys	Cys	Gly	Asp	Cys	Pro	Ser	Ala	Asp	Pro	Thr	Val	Lys	450	455	460
Leu	Gly	Ala	Val	Gly	Gly	Ser	Gly	Phe	Lys	Val	Cys	Leu	Arg	Thr	Pro	465	470	475
His	Leu	Glu	Lys	Arg	Tyr	Lys	Ile	Gln	Phe	Glu	Asn	Asn	Glu	Asp	Gln	485	490	495
Asp	Val	Asn	Pro	Leu	Lys	Leu	Gly	Leu	Leu	Thr	Trp	Ile	Glu	Glu	Asp	500	505	510
Val	Phe	Leu	Ala	Val	Ser	His	Ser	Glu	Phe	Ser	Pro	Arg	Ser	Val	Ile	515	520	525
His	His	Leu	Thr	Ala	Ala	Ser	Ser	Glu	Met	Asp	Glu	Glu	His	Gly	Gln	530	535	540
Leu	Asn	Val	Ser	Ser	Ser	Ala	Ala	Val	Asp	Gly	Val	Ile	Ile	Ser	Leu	545	550	555
Cys	Cys	Asn	Ser	Lys	Thr	Lys	Ser	Val	Val	Leu	Gln	Leu	Ala	Asp	Gly	565	570	575
Gln	Ile	Phe	Lys	Tyr	Leu	Trp	Glu	Ser	Pro	Ser	Leu	Ala	Ile	Lys	Pro	580	585	590
Trp	Lys	Asn	Ser	Gly	Gly	Phe	Pro	Val	Arg	Phe	Pro	Tyr	Pro	Cys	Thr	595	600	605
Gln	Thr	Glu	Leu	Ala	Met	Ile	Gly	Glu	Glu	Glu	Cys	Val	Leu	Gly	Leu	610	615	620
Thr	Asp	Arg	Cys	Arg	Phe	Phe	Ile	Asn	Asp	Ile	Glu	Val	Ala	Ser	Asn	625	630	635
Ile	Thr	Ser	Phe	Ala	Val	Tyr	Asp	Glu	Phe	Leu	Leu	Leu	Thr	Thr	His	645	650	655
Ser	His	Thr	Cys	Gln	Cys	Phe	Cys	Leu	Arg	Asp	Ala	Ser	Phe	Lys	Thr	660	665	670
Leu	Gln	Ala	Gly	Leu	Ser	Ser	Asn	His	Val	Ser	His	Gly	Glu	Val	Leu	675	680	685
Arg	Lys	Val	Glu	Arg	Gly	Ser	Arg	Ile	Val	Thr	Val	Val	Pro	Gln	Asp	690	695	700
Thr	Lys	Leu	Val	Leu	Gln	Met	Pro	Arg	Gly	Asn	Leu	Glu	Val	Val	His	705	710	715
His	Arg	Ala	Leu	Val	Leu	Ala	Gln	Ile	Arg	Lys	Trp	Leu	Asp	Lys	Leu	725	730	735
Met	Phe	Lys	Glu	Ala	Phe	Glu	Cys	Met	Arg	Lys	Leu	Arg	Ile	Asn	Leu	740	745	750

Asn	Pro	Ile	Tyr	Asp	His	Asn	Pro	Lys	Val	Phe	Leu	Gly	Asn	Val	Glu	755	760	765
Thr	Phe	Ile	Lys	Gln	Ile	Asp	Ser	Val	Asn	His	Ile	Asn	Leu	Phe	Phe	770	775	780
Thr	Glu	Leu	Lys	Glu	Glu	Asp	Val	Thr	Lys	Thr	Met	Tyr	Pro	Ala	Pro	785	790	795
Val	Thr	Ser	Ser	Val	Tyr	Leu	Ser	Arg	Asp	Pro	Asp	Gly	Asn	Lys	Ile	805	810	815
Asp	Leu	Val	Cys	Asp	Ala	Met	Arg	Ala	Val	Met	Glu	Ser	Ile	Asn	Pro	820	825	830
His	Lys	Tyr	Cys	Leu	Ser	Ile	Leu	Thr	Ser	His	Val	Lys	Lys	Thr	Thr	835	840	845
Pro	Glu	Leu	Glu	Ile	Val	Leu	Gln	Lys	Val	His	Glu	Leu	Gln	Gly	Asn	850	855	860
Ala	Pro	Ser	Asp	Pro	Asp	Ala	Val	Ser	Ala	Glu	Glu	Ala	Leu	Lys	Tyr	865	870	875
Leu	Leu	His	Leu	Val	Asp	Val	Asn	Glu	Leu	Tyr	Asp	His	Ser	Leu	Gly	885	890	895
Thr	Tyr	Asp	Phe	Asp	Leu	Val	Leu	Met	Val	Ala	Glu	Lys	Ser	Gln	Lys	900	905	910
Asp	Pro	Lys	Glu	Tyr	Leu	Pro	Phe	Leu	Asn	Thr	Leu	Lys	Lys	Met	Glu	915	920	925
Thr	Asn	Tyr	Gln	Arg	Phe	Thr	Ile	Asp	Lys	Tyr	Leu	Lys	Arg	Tyr	Glu	930	935	940
Lys	Ala	Ile	Gly	His	Leu	Ser	Lys	Cys	Gly	Pro	Glu	Tyr	Phe	Pro	Glu	945	950	955
Cys	Leu	Asn	Leu	Ile	Lys	Asp	Lys	Asn	Leu	Tyr	Asn	Glu	Ala	Leu	Lys	965	970	975
Leu	Tyr	Ser	Pro	Ser	Ser	Gln	Gln	Tyr	Gln	Asp	Ile	Ser	Ile	Ala	Tyr	980	985	990
Gly	Glu	His	Leu	Met	Gln	Glu	His	Met	Tyr	Glu	Pro	Ala	Gly	Leu	Met	995	1000	1005
Phe	Ala	Arg	Cys	Gly	Ala	His	Glu	Lys	Ala	Leu	Ser	Ala	Phe	Leu	Thr	1010	1015	1020
Cys	Gly	Asn	Trp	Lys	Gln	Ala	Leu	Cys	Val	Ala	Ala	Gln	Leu	Asn	Phe	1025	1030	1035
Thr	Lys	Asp	Gln	Leu	Val	Gly	Leu	Gly	Arg	Thr	Leu	Ala	Gly	Lys	Leu	1045	1050	1055

Val Glu Gln Arg Lys His Ile Asp Ala Ala Met Val Leu Glu Glu Ser  
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 Ala Gln Asp Tyr Glu Glu Ala Val Leu Leu Leu Leu Glu Gly Ala Ala  
 1075 1080 1085  
 Trp Glu Glu Ala Leu Arg Leu Val Tyr Lys Tyr Asn Arg Leu Asp Ile  
 1090 1095 1100  
 Ile Glu Thr Asn Val Lys Pro Ser Ile Leu Glu Ala Gln Lys Asn Tyr  
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 Met Ala Phe Leu Asp Ser Gln Thr Ala Thr Phe Ser Arg His Lys Lys  
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 Arg Leu Leu Val Val Arg Glu Leu Lys Glu Gln Ala Gln Gln Ala Gly  
 1140 1145 1150  
 Leu Asp Asp Glu Val Pro His Gly Gln Glu Ser Asp Leu Phe Ser Glu  
 1155 1160 1165  
 Thr Ser Ser Val Val Ser Gly Ser Glu Met Ser Gly Lys Tyr Ser His  
 1170 1175 1180  
 Ser Asn Ser Arg Ile Ser Ala Arg Ser Ser Lys Asn Arg Arg Lys Ala  
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 Glu Arg Lys Lys His Ser Leu Lys Glu Gly Ser Pro Leu Glu Asp Leu  
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 Ala Leu Leu Glu Ala Leu Ser Glu Val Val Gln Asn Thr Glu Asn Leu  
 1220 1225 1230  
 Lys Asp Glu Val Tyr His Ile Leu Lys Val Leu Phe Leu Phe Glu Phe  
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 Leu Met Glu Arg Ser Leu Pro Glu Ile Trp Thr Leu Thr Tyr Gln Gln  
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 Asn Ser Ala Thr Pro Val Leu Gly Pro Asn Ser Thr Ala Asn Ser Ile  
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 Met Ala Ser Tyr Gln Gln Gln Lys Thr Ser Val Pro Val Leu Asp Ala  
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 1315 1320 1325  
 Ser Leu Leu Asp  
 1330

&lt;210&gt; 4

&lt;211&gt; 1332

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 4

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Ala	Pro	Gly	Lys	Pro	Gln	Cys	Phe	Cys	Leu	Arg	Ala	Glu	Gln	Gly	Thr	20	25	30	
Val	Leu	Ile	Gly	Ser	Glu	Arg	Gly	Leu	Thr	Glu	Val	Asp	Pro	Val	Arg	35	40	45	
Arg	Glu	Val	Lys	Thr	Glu	Ile	Ser	Leu	Val	Ala	Glu	Gly	Phe	Leu	Pro	50	55	60	
Glu	Asp	Gly	Ser	Gly	Cys	Ile	Val	Gly	Ile	Gln	Asp	Leu	Leu	Asp	Gln	65	70	75	80
Glu	Ser	Val	Cys	Val	Ala	Thr	Ala	Ser	Gly	Asp	Val	Ile	Val	Cys	Asn	85	90	95	
Leu	Ser	Thr	Gln	Gln	Leu	Glu	Cys	Val	Gly	Ser	Val	Ala	Ser	Gly	Ile	100	105	110	
Ser	Val	Met	Ser	Trp	Ser	Pro	Asp	Gln	Glu	Leu	Leu	Leu	Leu	Ala	Thr	115	120	125	
Ala	Gln	Gln	Thr	Leu	Ile	Met	Met	Thr	Lys	Asp	Phe	Glu	Val	Ile	Ala	130	135	140	
Glu	Glu	Gln	Ile	His	Gln	Asp	Asp	Phe	Gly	Glu	Gly	Lys	Phe	Val	Thr	145	150	155	160
Val	Gly	Trp	Gly	Ser	Lys	Gln	Thr	Gln	Phe	His	Gly	Ser	Glu	Gly	Arg	165	170	175	
Pro	Thr	Ala	Phe	Pro	Val	Gln	Leu	Pro	Glu	Asn	Ala	Leu	Pro	Trp	Asp	180	185	190	
Asp	Arg	Arg	Pro	His	Ile	Thr	Trp	Arg	Gly	Asp	Gly	Gln	Tyr	Phe	Ala	195	200	205	
Val	Ser	Val	Val	Cys	Arg	Gln	Thr	Glu	Ala	Arg	Lys	Ile	Arg	Val	Trp	210	215	220	
Asn	Arg	Glu	Phe	Ala	Leu	Gln	Ser	Thr	Ser	Glu	Ser	Val	Pro	Gly	Leu	225	230	235	240
Gly	Pro	Ala	Leu	Ala	Trp	Lys	Pro	Ser	Gly	Ser	Leu	Ile	Ala	Ser	Thr	245	250	255	
Gln	Asp	Lys	Pro	Asn	Gln	Gln	Asp	Val	Val	Phe	Phe	Glu	Lys	Asn	Gly	260	265	270	
Leu	Leu	His	Gly	His	Phe	Thr	Leu	Pro	Phe	Leu	Lys	Asp	Glu	Val	Lys	275	280	285	

Val	Asn	Asp	Leu	Leu	Trp	Asn	Ala	Asp	Ser	Ser	Val	Leu	Ala	Ile	Trp	290	295	300	
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Gln	Leu	Trp	Thr	Val	Gly	Asn	Tyr	His	Trp	Tyr	Leu	Lys	Gln	Ser	Leu	325	330	335	
Pro	Phe	Ser	Thr	Thr	Gly	Lys	Asn	Gln	Ile	Val	Ser	Leu	Leu	Trp	Asp	340	345	350	
Pro	Val	Thr	Pro	Cys	Arg	Leu	His	Val	Leu	Cys	Thr	Gly	Trp	Arg	Tyr	355	360	365	
Leu	Cys	Cys	Asp	Trp	His	Trp	Thr	Thr	Asp	Arg	Ser	Ser	Gly	Asn	Ser	370	375	380	
Ala	Asn	Asp	Leu	Ala	Asn	Val	Ala	Val	Ile	Asp	Gly	Asn	Arg	Val	Leu	385	390	395	400
Val	Thr	Val	Phe	Arg	Gln	Thr	Val	Val	Pro	Pro	Pro	Met	Cys	Thr	Tyr	405	410	415	
Arg	Leu	Leu	Ile	Pro	His	Pro	Val	Asn	Gln	Val	Ile	Phe	Ser	Ala	His	420	425	430	
Leu	Gly	Asn	Asp	Leu	Ala	Val	Leu	Asp	Ala	Ser	Asn	Gln	Ile	Ser	Val	435	440	445	
Tyr	Lys	Cys	Gly	Asp	Lys	Pro	Asn	Met	Asp	Ser	Thr	Val	Lys	Leu	Gly	450	455	460	
Ala	Val	Gly	Gly	Asn	Gly	Phe	Lys	Val	Pro	Leu	Thr	Thr	Pro	His	Leu	465	470	475	480
Glu	Lys	Arg	Tyr	Ser	Ile	Gln	Phe	Gly	Asn	Asn	Glu	Glu	Glu	Glu	Glu	485	490	495	
Glu	Asp	Phe	Ala	Leu	Gln	Leu	Ser	Phe	Leu	Thr	Trp	Val	Glu	Asp	Asp	500	505	510	
Thr	Phe	Leu	Ala	Ile	Ser	Tyr	Ser	His	Ser	Ser	Ser	Gln	Ser	Ile	Ile	515	520	525	
His	His	Leu	Thr	Val	Thr	His	Ser	Glu	Val	Asp	Glu	Glu	Gln	Gly	Gln	530	535	540	
Leu	Asp	Val	Ser	Ser	Ser	Val	Thr	Val	Asp	Gly	Val	Val	Ile	Gly	Leu	545	550	555	560
Cys	Cys	Cys	Ser	Lys	Thr	Lys	Ser	Leu	Ala	Val	Gln	Leu	Ala	Asp	Gly	565	570	575	
Gln	Val	Leu	Lys	Ile	Leu	Trp	Glu	Ser	Pro	Ser	Leu	Ala	Val	Glu	Pro	580	585	590	

Trp	Lys	Asn	Ser	Glu	Gly	Ile	Pro	Val	Arg	Phe	Val	His	Pro	Cys	Thr	595	600	605	
Gln	Met	Glu	Val	Ala	Thr	Ile	Gly	Gly	Glu	Glu	Cys	Val	Leu	Gly	Leu	610	615	620	
Thr	Asp	Arg	Cys	Arg	Phe	Phe	Ile	Leu	Val	Thr	Glu	Val	Ala	Ser	Asn	625	630	635	640
Ile	Thr	Ser	Phe	Ala	Val	Cys	Asp	Asp	Phe	Leu	Leu	Val	Thr	Thr	His	645	650	655	
Ser	His	Thr	Cys	Gln	Gly	Phe	Ser	Leu	Ser	Gly	Ala	Ser	Leu	Lys	Met	660	665	670	
Leu	Gln	Ala	Ala	Leu	Ser	Gly	Ser	His	Glu	Ala	Ser	Gly	Glu	Ile	Leu	675	680	685	
Arg	Lys	Val	Val	Trp	Gly	Ser	Arg	Ile	Val	Thr	Val	Val	Pro	Gln	Asp	690	695	700	
Thr	Lys	Leu	Ile	Leu	Gln	Met	Pro	Arg	Gly	Asn	Leu	Glu	Val	Val	His	705	710	715	720
His	Arg	Ala	Leu	Val	Leu	Ala	Gln	Ile	Arg	Lys	Trp	Leu	Asp	Lys	Leu	725	730	735	
Met	Phe	Lys	Glu	Ala	Phe	Glu	Cys	Met	Arg	Lys	Leu	Arg	Ile	Asn	Leu	740	745	750	
Asn	Leu	Ile	His	Asp	His	Asn	Pro	Lys	Val	Phe	Leu	Glu	Asn	Val	Glu	755	760	765	
Thr	Phe	Val	Phe	Gln	Ile	Asp	Ser	Val	Asn	His	Ile	Asn	Leu	Phe	Phe	770	775	780	
Thr	Glu	Leu	Arg	Glu	Glu	Asp	Val	Thr	Lys	Thr	Met	Tyr	Pro	Pro	Pro	785	790	795	800
Ile	Thr	Lys	Ser	Val	Gln	Val	Ser	Thr	His	Pro	Asp	Gly	Lys	Lys	Leu	805	810	815	
Asp	Leu	Ile	Cys	Asp	Ala	Met	Arg	Ala	Ala	Met	Glu	Ala	Ile	Asn	Pro	820	825	830	
Arg	Lys	Phe	Cys	Leu	Ser	Ile	Leu	Thr	Ser	His	Val	Lys	Lys	Thr	Thr	835	840	845	
Pro	Glu	Leu	Glu	Ile	Val	Leu	Gln	Lys	Val	Gln	Glu	Leu	Gln	Gly	Asn	850	855	860	
Leu	Pro	Phe	Asp	Pro	Glu	Ser	Val	Ser	Val	Glu	Glu	Ala	Leu	Lys	Tyr	865	870	875	880
Leu	Leu	Leu	Leu	Val	Asp	Val	Asn	Glu	Leu	Phe	Asn	His	Ser	Leu	Gly	885	890	895	



Thr	Tyr	Asp	Phe	Asn	Leu	Val	Leu	Met	Val	Ala	Glu	Lys	Ser	Gln	Lys	900	905	910
Asp	Pro	Lys	Glu	Tyr	Leu	Pro	Phe	Leu	Asn	Thr	Leu	Lys	Lys	Met	Glu	915	920	925
Thr	Asn	Tyr	Gln	Arg	Phe	Thr	Ile	Asp	Lys	Tyr	Leu	Lys	Arg	Tyr	Glu	930	935	940
Lys	Ala	Leu	Gly	His	Leu	Ser	Lys	Cys	Gly	Pro	Glu	Tyr	Phe	Thr	Glu	945	950	955
Cys	Leu	Asn	Leu	Ile	Lys	Asp	Lys	Asn	Leu	Tyr	Lys	Glu	Ala	Leu	Lys	965	970	975
Leu	Tyr	Arg	Pro	Asp	Ser	Pro	Gln	Tyr	Gln	Ala	Val	Ser	Met	Ala	Tyr	980	985	990
Gly	Glu	His	Leu	Met	Gln	Glu	His	Leu	Tyr	Glu	Pro	Ala	Gly	Leu	Val	995	1000	1005
Phe	Ala	Arg	Cys	Gly	Ala	Gln	Glu	Lys	Ala	Leu	Glu	Ala	Phe	Leu	Ala	1010	1015	1020
Cys	Gly	Ser	Trp	Gln	Gln	Ala	Leu	Cys	Val	Ala	Ala	Gln	Leu	Gln	Met	1025	1030	1035
Ser	Lys	Asp	Lys	Val	Ala	Gly	Leu	Ala	Arg	Thr	Leu	Ala	Gly	Lys	Leu	1045	1050	1055
Val	Glu	Gln	Arg	Lys	His	Ser	Glu	Ala	Ala	Thr	Val	Leu	Glu	Gln	Tyr	1060	1065	1070
Ala	Gln	Asp	Tyr	Glu	Glu	Ala	Val	Leu	Leu	Leu	Leu	Glu	Gly	Ser	Ala	1075	1080	1085
Trp	Glu	Glu	Ala	Leu	Arg	Leu	Val	Tyr	Lys	Tyr	Asp	Arg	Val	Asp	Ile	1090	1095	1100
Ile	Glu	Thr	Ser	Ile	Lys	Pro	Ser	Ile	Leu	Glu	Ala	Gln	Lys	Asn	Tyr	1105	1110	1115
Met	Asp	Phe	Leu	Asp	Ser	Glu	Thr	Ala	Thr	Phe	Ile	Arg	His	Lys	Asn	1125	1130	1135
Arg	Leu	Gln	Val	Val	Arg	Ala	Leu	Arg	Arg	Gln	Ala	Pro	Gln	Val	His	1140	1145	1150
Val	Asp	His	Glu	Val	Ala	His	Gly	Pro	Glu	Ser	Asp	Leu	Phe	Ser	Glu	1155	1160	1165
Thr	Ser	Ser	Ile	Met	Ser	Gly	Ser	Glu	Met	Ser	Gly	Arg	Tyr	Ser	His	1170	1175	1180
Ser	Asn	Ser	Arg	Ile	Ser	Ala	Arg	Ser	Ser	Lys	Asn	Arg	Arg	Lys	Ala	1185	1190	1195
																		1200



Gly	Gln	Gln	Thr	Leu	Ile	Met	Met	Thr	Lys	Asp	Phe	Glu	Pro	Ile	Leu	130	135	140
Glu	Gln	Gln	Ile	His	Gln	Asp	Asp	Phe	Gly	Glu	Ser	Lys	Phe	Ile	Thr	145	150	155
Val	Gly	Trp	Gly	Arg	Lys	Glu	Thr	Gln	Phe	His	Gly	Ser	Glu	Gly	Arg	165	170	175
Gln	Ala	Ala	Phe	Gln	Met	Gln	Met	His	Glu	Ser	Ala	Leu	Pro	Trp	Asp	180	185	190
Asp	His	Arg	Pro	Gln	Val	Thr	Trp	Arg	Gly	Asp	Gly	Gln	Phe	Phe	Ala	195	200	205
Val	Ser	Val	Val	Cys	Pro	Glu	Thr	Gly	Ala	Arg	Lys	Val	Arg	Val	Trp	210	215	220
Asn	Arg	Glu	Phe	Ala	Leu	Gln	Ser	Thr	Ser	Glu	Pro	Val	Ala	Gly	Leu	225	230	235
Gly	Pro	Ala	Leu	Ala	Trp	Lys	Pro	Ser	Gly	Ser	Leu	Ile	Ala	Ser	Thr	245	250	255
Gln	Asp	Lys	Pro	Asn	Gln	Gln	Asp	Ile	Val	Phe	Phe	Glu	Lys	Asn	Gly	260	265	270
Leu	Leu	His	Gly	His	Phe	Thr	Leu	Pro	Phe	Leu	Lys	Asp	Glu	Val	Lys	275	280	285
Val	Asn	Asp	Leu	Leu	Trp	Asn	Ala	Asp	Ser	Ser	Val	Leu	Ala	Val	Trp	290	295	300
Leu	Glu	Asp	Leu	Gln	Arg	Glu	Glu	Ser	Ser	Ile	Pro	Lys	Thr	Cys	Val	305	310	315
Gln	Leu	Trp	Thr	Val	Gly	Asn	Tyr	His	Trp	Tyr	Leu	Lys	Gln	Ser	Leu	325	330	335
Ser	Phe	Ser	Thr	Cys	Gly	Lys	Ser	Lys	Ile	Val	Ser	Leu	Met	Trp	Asp	340	345	350
Pro	Val	Thr	Pro	Tyr	Arg	Leu	His	Val	Leu	Cys	Gln	Gly	Trp	His	Tyr	355	360	365
Leu	Ala	Tyr	Asp	Trp	His	Trp	Thr	Thr	Asp	Arg	Ser	Val	Gly	Asp	Asn	370	375	380
Ser	Ser	Asp	Leu	Ser	Asn	Val	Ala	Val	Ile	Asp	Gly	Asn	Arg	Val	Leu	385	390	395
Val	Thr	Val	Phe	Arg	Gln	Thr	Val	Val	Pro	Pro	Pro	Met	Cys	Thr	Tyr	405	410	415
Gln	Leu	Leu	Phe	Pro	His	Pro	Val	Asn	Gln	Val	Thr	Phe	Leu	Ala	His	420	425	430

Pro Gln Lys Ser Asn Asp Leu Ala Val Leu Asp Ala Ser Asn Gln Ile  
 435 440 445  
 Ser Val Tyr Lys Cys Gly Asp Cys Pro Ser Ala Asp Pro Thr Val Lys  
 450 455 460  
 Leu Gly Ala Val Gly Gly Ser Gly Phe Lys Val Cys Leu Arg Thr Pro  
 465 470 475 480  
 His Leu Glu Lys Arg Tyr Lys Ile Gln Phe Glu Asn Asn Glu Asp Gln  
 485 490 495  
 Asp Val Asn Pro Leu Lys Leu Gly Leu Leu Thr Trp Ile Glu Glu Asp  
 500 505 510  
 Val Phe Leu Ala Val Ser His Ser Glu Phe Ser Pro Arg Ser Val Ile  
 515 520 525  
 His His Leu Thr Ala Ala Ser Ser Glu Met Asp Glu Glu His Gly Gln  
 530 535 540  
 Leu Asn Val Ser Ser Ser Ala Ala Val Asp Gly Val Ile Ile Ser Leu  
 545 550 555 560  
 Cys Cys Asn Ser Lys Thr Lys Ser Val Val Leu Gln Leu Ala Asp Gly  
 565 570 575  
 Gln Ile Phe Lys Tyr Leu Trp Glu Ser Pro Ser Leu Ala Ile Lys Pro  
 580 585 590  
 Trp Lys Asn Ser Gly Gly Phe Pro Val Arg Phe Pro Tyr Pro Cys Thr  
 595 600 605  
 Gln Thr Glu Leu Ala Met Ile Gly Glu Glu Glu Cys Val Leu Gly Leu  
 610 615 620  
 Thr Asp Arg Cys Arg Phe Phe Ile Asn Asp Ile Glu Val Ala Ser Asn  
 625 630 635 640  
 Ile Thr Ser Phe Ala Val Tyr Asp Glu Phe Leu Leu Leu Thr Thr His  
 645 650 655  
 Ser His Thr Cys Gln Cys Phe Cys Leu Arg Asp Ala Ser Phe Lys Thr  
 660 665 670  
 Leu Gln Ala Gly Leu Ser Ser Asn His Val Ser His Gly Glu Val Leu  
 675 680 685  
 Arg Lys Val Glu Arg Gly Ser Arg Ile Val Thr Val Val Pro Gln Asp  
 690 695 700  
 Thr Lys Leu Val Leu Gln Met Pro Arg Gly Asn Leu Glu Val Val His  
 705 710 715 720  
 His Arg Ala Leu Val Leu Ala Gln Ile Arg Lys Trp Leu Asp Lys Leu  
 725 730 735

Met	Phe	Lys	Glu	Ala	Phe	Glu	Cys	Met	Arg	Lys	Leu	Arg	Ile	Asn	Leu	740	745	750
Asn	Leu	Ile	Tyr	Asp	His	Asn	Pro	Lys	Val	Phe	Leu	Gly	Asn	Val	Glu	755	760	765
Thr	Phe	Ile	Lys	Gln	Ile	Asp	Ser	Val	Asn	His	Ile	Asn	Leu	Phe	Phe	770	775	780
Thr	Glu	Leu	Lys	Glu	Glu	Asp	Val	Thr	Lys	Thr	Met	Tyr	Pro	Ala	Pro	785	790	795
Val	Thr	Ser	Ser	Val	Tyr	Leu	Ser	Arg	Asp	Pro	Asp	Gly	Asn	Lys	Ile	805	810	815
Asp	Leu	Val	Cys	Asp	Ala	Met	Arg	Ala	Val	Met	Glu	Ser	Ile	Asn	Pro	820	825	830
His	Lys	Tyr	Cys	Leu	Ser	Ile	Leu	Thr	Ser	His	Val	Lys	Lys	Thr	Thr	835	840	845
Pro	Glu	Leu	Glu	Ile	Val	Leu	Gln	Lys	Val	His	Glu	Leu	Gln	Gly	Asn	850	855	860
Ala	Pro	Ser	Asp	Pro	Asp	Ala	Val	Ser	Ala	Glu	Glu	Ala	Leu	Lys	Tyr	865	870	875
Leu	Leu	His	Leu	Val	Asp	Val	Asn	Glu	Leu	Tyr	Asp	His	Ser	Leu	Gly	885	890	895
Thr	Tyr	Asp	Phe	Asp	Leu	Val	Leu	Met	Val	Ala	Glu	Lys	Ser	Gln	Lys	900	905	910
Asp	Pro	Lys	Glu	Tyr	Leu	Pro	Phe	Leu	Asn	Thr	Leu	Lys	Lys	Met	Glu	915	920	925
Thr	Asn	Tyr	Gln	Arg	Phe	Thr	Ile	Asp	Lys	Tyr	Leu	Lys	Arg	Tyr	Glu	930	935	940
Lys	Ala	Ile	Gly	His	Leu	Ser	Lys	Cys	Gly	Pro	Glu	Tyr	Phe	Pro	Glu	945	950	955
Cys	Leu	Asn	Leu	Ile	Lys	Asp	Lys	Asn	Leu	Tyr	Asn	Glu	Ala	Leu	Lys	965	970	975
Leu	Tyr	Ser	Pro	Ser	Ser	Gln	Gln	Tyr	Gln	Asp	Ile	Ser	Ile	Ala	Tyr	980	985	990
Gly	Glu	His	Leu	Met	Gln	Glu	His	Met	Tyr	Glu	Pro	Ala	Gly	Leu	Met	995	1000	1005
Phe	Ala	Arg	Cys	Gly	Ala	His	Glu	Lys	Ala	Leu	Ser	Ala	Phe	Leu	Thr	1010	1015	1020
Cys	Gly	Asn	Trp	Lys	Gln	Ala	Leu	Cys	Val	Ala	Ala	Gln	Leu	Asn	Phe	1025	1030	1035
																		1040

Thr Lys Asp Gln Leu Val Gly Leu Gly Arg Thr Leu Ala Gly Lys Leu  
 1045 1050 1055  
 Val Glu Gln Arg Lys His Ile Asp Ala Ala Met Val Leu Glu Glu Ser  
 1060 1065 1070  
 Ala Gln Asp Tyr Glu Glu Ala Val Leu Leu Leu Leu Glu Gly Ala Ala  
 1075 1080 1085  
 Trp Glu Glu Ala Leu Arg Leu Val Tyr Lys Tyr Asn Arg Leu Asp Ile  
 1090 1095 1100  
 Ile Glu Thr Asn Val Lys Pro Ser Ile Leu Glu Ala Gln Lys Asn Tyr  
 1105 1110 1115 1120  
 Met Ala Phe Leu Asp Ser Gln Thr Ala Thr Phe Ser Arg His Lys Lys  
 1125 1130 1135  
 Arg Leu Leu Val Val Arg Glu Leu Lys Glu Gln Ala Gln Gln Ala Gly  
 1140 1145 1150  
 Leu Asp Asp Glu Val Pro His Gly Gln Glu Ser Asp Leu Phe Ser Glu  
 1155 1160 1165  
 Thr Ser Ser Val Val Ser Gly Ser Glu Met Ser Gly Lys Tyr Ser His  
 1170 1175 1180  
 Ser Asn Ser Arg Ile Ser Ala Arg Ser Ser Lys Asn Arg Arg Lys Ala  
 1185 1190 1195 1200  
 Glu Arg Lys Lys His Ser Leu Lys Glu Gly Ser Pro Leu Glu Asp Leu  
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 Ala Leu Leu Glu Ala Leu Ser Glu Val Val Gln Asn Thr Glu Asn Leu  
 1220 1225 1230  
 Lys Asp Glu Val Tyr His Ile Leu Lys Val Leu Phe Leu Phe Glu Phe  
 1235 1240 1245  
 Asp Glu Gln Gly Arg Glu Leu Gln Lys Ala Phe Glu Asp Thr Leu Gln  
 1250 1255 1260  
 Leu Met Glu Arg Ser Leu Pro Glu Ile Trp Thr Leu Thr Tyr Gln Gln  
 1265 1270 1275 1280  
 Asn Ser Ala Thr Pro Val Leu Gly Pro Asn Ser Thr Ala Asn Ser Ile  
 1285 1290 1295  
 Met Ala Ser Tyr Gln Gln Gln Lys Thr Ser Val Pro Val Leu Asp Ala  
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 Glu Leu Phe Ile Pro Pro Lys Ile Asn Arg Arg Thr Gln Trp Lys Leu  
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 Ser Leu Leu Asp  
 1330

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 <212> PRT  
 <213> *Drosophila melanogaster*

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 His Pro Gln His Leu Leu Leu Gln Pro Glu Leu Asn Gly Gly Ala Ser  
                   20                  25                  30  
 Asp Ile Tyr Phe Val Val Ala Asp Asn Lys Thr Tyr Ala Val Gln Glu  
                   35                  40                  45  
 Ser Gly Asp Val Arg Leu Lys Val Ile Ala Asp Leu Pro Asp Ile Val  
                   50                  55                  60  
 Gly Val Glu Phe Leu Gln Leu Asp Asn Ala Ile Cys Val Ala Ser Gly  
                   65                  70                  75                  80  
 Ala Gly Glu Val Ile Leu Val Asp Pro Gln Thr Gly Ala Thr Ser Glu  
                   85                  90                  95  
 Gly Thr Phe Cys Asp Val Gly Ile Glu Ser Met Ala Trp Ser Pro Asn  
                   100                  105                  110  
 Gln Glu Val Val Ala Phe Val Thr Arg Thr His Asn Val Val Leu Met  
                   115                  120                  125  
 Thr Ser Thr Phe Asp Val Ile Ala Glu Gln Pro Leu Asp Ala Glu Leu  
                   130                  135                  140  
 Asp Pro Asp Gln Gln Phe Val Asn Val Gly Trp Gly Lys Lys Glu Thr  
                   145                  150                  155                  160  
 Gln Phe His Gly Ser Glu Gly Lys Gln Ala Ala Lys Gln Lys Glu Ser  
                   165                  170                  175  
 Asp Ser Thr Phe Thr Arg Asp Glu Gln Glu Leu Asn Gln Asp Val Ser  
                   180                  185                  190  
 Ile Ser Trp Arg Gly Asp Gly Glu Phe Phe Val Val Ser Tyr Val Ala  
                   195                  200                  205  
 Ala Gln Leu Gly Arg Thr Phe Lys Val Tyr Asp Ser Glu Gly Lys Leu  
                   210                  215                  220  
 Asn His Thr Ala Glu Lys Ser Ala Asn Leu Lys Asp Ser Val Val Trp  
                   225                  230                  235                  240  
 Arg Pro Thr Gly Asn Trp Ile Ala Val Pro Gln Gln Phe Pro Asn Lys  
                   245                  250                  255  
 Ser Thr Ile Ala Leu Phe Glu Lys Asn Gly Leu Arg His Arg Glu Leu  
                   260                  265                  270



Val	Leu	Pro	Phe	Asp	Leu	Gln	Glu	Glu	Pro	Val	Val	Gln	Leu	Arg	Trp	275	280	285
Ser	Glu	Asp	Ser	Asp	Ile	Leu	Ala	Ile	Arg	Thr	Cys	Ala	Lys	Glu	Glu	290	295	300
Gln	Arg	Val	Tyr	Leu	Tyr	Thr	Ile	Gly	Asn	Tyr	His	Trp	Tyr	Leu	Lys	305	310	315
Gln	Val	Leu	Ile	Phe	Glu	Gln	Ala	Asp	Pro	Leu	Ala	Leu	Leu	His	Trp	325	330	335
Asp	Thr	Arg	Cys	Gly	Ala	Glu	His	Thr	Leu	His	Val	Leu	Lys	Glu	Ser	340	345	350
Gly	Lys	His	Leu	Val	Tyr	Arg	Trp	Ala	Phe	Ala	Val	Asp	Arg	Asn	Asn	355	360	365
Ser	Ile	Val	Gly	Val	Ile	Asp	Gly	Lys	Arg	Leu	Leu	Leu	Thr	Asp	Phe	370	375	380
Asp	Glu	Ala	Ile	Val	Pro	Pro	Pro	Met	Ser	Lys	Glu	Leu	Gln	Lys	Pro	385	390	395
Ile	Met	Leu	Met	Pro	Asp	Ala	Glu	Leu	Ser	Gly	Leu	His	Leu	Ala	Asn	405	410	415
Leu	Thr	His	Phe	Ser	Pro	His	Tyr	Leu	Leu	Ala	Thr	His	Ser	Ser	Ala	420	425	430
Gly	Ser	Thr	Arg	Leu	Leu	Leu	Leu	Ser	Tyr	Lys	Asp	Asn	Asp	Asn	Lys	435	440	445
Pro	Gly	Glu	Trp	Phe	Tyr	Arg	Val	His	Ser	Ser	Val	Arg	Ile	Asn	Gly	450	455	460
Leu	Val	Asn	Ala	Val	Ala	Val	Ala	Pro	Tyr	Ala	Met	Asn	Glu	Phe	Tyr	465	470	475
Val	Gln	Thr	Val	Asn	Asn	Gly	His	Thr	Tyr	Glu	Val	Ser	Leu	Lys	Ala	485	490	495
Asp	Lys	Thr	Leu	Lys	Val	Glu	Arg	Ser	Tyr	Val	Gln	Leu	His	Glu	Pro	500	505	510
Ala	Asp	Gln	Ile	Asp	Trp	Val	Ile	Val	Lys	Gly	Cys	Ile	Trp	Asp	Gly	515	520	525
Tyr	Thr	Gly	Ala	Leu	Val	Thr	Leu	Arg	Asn	Gln	His	Leu	Leu	His	Ile	530	535	540
Asp	Gly	Tyr	Arg	Ile	Gly	Glu	Asp	Val	Thr	Ser	Phe	Cys	Val	Val	Thr	545	550	555
Asn	Tyr	Leu	Val	Tyr	Thr	Gln	Leu	Asn	Ala	Met	His	Phe	Val	Gln	Leu	565	570	575

Asp	Asp	Arg	Arg	Gln	Val	Ala	Ser	Arg	Asn	Ile	Glu	Arg	Gly	Ala	Lys	580	585	590
Ile	Val	Thr	Ala	Val	Ala	Arg	Lys	Ala	Arg	Val	Val	Leu	Gln	Leu	Pro	595	600	605
Arg	Gly	Asn	Leu	Glu	Ala	Ile	Cys	Pro	Arg	Val	Leu	Val	Leu	Glu	Leu	610	615	620
Val	Gly	Asp	Leu	Leu	Glu	Arg	Gly	Lys	Tyr	Gln	Lys	Ala	Ile	Glu	Met	625	630	635
Ser	Arg	Lys	Gln	Arg	Ile	Asn	Leu	Asn	Ile	Ile	Phe	Asp	His	Asp	Val	645	650	655
Lys	Arg	Phe	Val	Ser	Ser	Val	Gly	Ala	Phe	Leu	Asn	Asp	Ile	Asn	Glu	660	665	670
Pro	Gln	Trp	Leu	Cys	Leu	Phe	Leu	Ser	Glu	Leu	Gln	Asn	Glu	Asp	Phe	675	680	685
Thr	Lys	Gly	Met	Tyr	Ser	Ser	Asn	Tyr	Asp	Ala	Ser	Lys	Gln	Thr	Tyr	690	695	700
Pro	Ser	Asp	Tyr	Arg	Val	Asp	Gln	Lys	Val	Phe	Tyr	Val	Cys	Arg	Leu	705	710	715
Leu	Glu	Gln	Gln	Met	Asn	Arg	Phe	Val	Ser	Arg	Phe	Arg	Leu	Pro	Leu	725	730	735
Ile	Thr	Ala	Tyr	Val	Lys	Leu	Gly	Cys	Leu	Glu	Met	Ala	Leu	Gln	Val	740	745	750
Ile	Trp	Lys	Glu	Gln	Gln	Glu	Asp	Ala	Ser	Leu	Ala	Asp	Gln	Leu	Leu	755	760	765
Gln	His	Leu	Leu	Tyr	Leu	Val	Asp	Val	Asn	Asp	Leu	Tyr	Asn	Val	Ala	770	775	780
Leu	Gly	Thr	Tyr	Asp	Phe	Gly	Leu	Val	Leu	Phe	Val	Ala	Gln	Lys	Ser	785	790	795
Gln	Lys	Asp	Pro	Lys	Glu	Phe	Leu	Pro	Tyr	Leu	Asn	Asp	Leu	Lys	Ala	805	810	815
Leu	Pro	Ile	Asp	Tyr	Arg	Lys	Phe	Arg	Ile	Asp	Asp	His	Leu	Lys	Arg	820	825	830
Tyr	Thr	Ser	Ala	Leu	Ser	His	Leu	Ala	Ala	Cys	Gly	Glu	Gln	His	Tyr	835	840	845
Glu	Glu	Ala	Leu	Glu	Tyr	Ile	Arg	Lys	His	Gly	Leu	Tyr	Thr	Asp	Gly	850	855	860
Leu	Ala	Phe	Tyr	Arg	Glu	His	Ile	Glu	Phe	Gln	Lys	Asn	Ile	Tyr	Val	865	870	875
																		880

Ala Tyr Ala Asp His Leu Arg Ala Ile Ala Lys Leu Asp Asn Ala Ser  
                                   885                                  890                                  895  
 Leu Met Tyr Glu Arg Gly Gly Gln Leu Gln Gln Ala Leu Leu Ser Ala  
                                   900                                  905                                  910  
 Lys His Thr Leu Asp Trp Gln Arg Val Leu Val Leu Ala Lys Lys Leu  
                                   915                                  920                                  925  
 Ser Glu Pro Leu Asp Gln Val Ala Gln Ser Leu Val Gly Pro Leu Gln  
                                   930                                  935                                  940  
 Gln Gln Gly Arg His Met Glu Ala Tyr Glu Leu Val Lys Glu His Cys  
                                   945                                  950                                  955                                  960  
 Gln Asp Arg Lys Arg Gln Phe Asp Val Leu Leu Glu Gly His Leu Tyr  
                                   965                                  970                                  975  
 Ser Arg Ala Ile Tyr Glu Ala Gly Leu Glu Asp Asp Asp Val Ser Glu  
                                   980                                  985                                  990  
 Lys Ile Ala Pro Ala Leu Leu Ala Tyr Gly Val Gln Leu Glu Ser Ser  
                                   995                                  1000                                  1005  
 Leu Gln Ala Asp Leu Gln Leu Phe Leu Asp Tyr Lys Gln Arg Leu Leu  
                                   1010                                  1015                                  1020  
 Asp Ile Arg Arg Asn Gln Ala Lys Ser Gly Glu Gly Tyr Ile Asp Thr  
                                   1025                                  1030                                  1035                                  1040  
 Asp Val Asn Leu Lys Glu Val Asp Leu Leu Ser Asp Thr Thr Ser Leu  
                                   1045                                  1050                                  1055  
 His Ser Ser Gln Tyr Ser Gly Thr Ser Arg Arg Thr Gly Lys Thr Phe  
                                   1060                                  1065                                  1070  
 Arg Ser Ser Lys Asn Arg Arg Lys His Glu Arg Lys Leu Phe Ser Leu  
                                   1075                                  1080                                  1085  
 Lys Pro Gly Asn Pro Phe Glu Asp Ile Ala Leu Ile Asp Ala Leu His  
                                   1090                                  1095                                  1100  
 Asn His Val Thr Lys Ile Ala Gln Gln Gln Gln Pro Val Arg Asp Thr  
                                   1105                                  1110                                  1115                                  1120  
 Cys Lys Ala Leu Leu Gln Leu Ala Asn Ala Ala Asp Ala Asp Pro Leu  
                                   1125                                  1130                                  1135  
 Ala Ala Ala Leu Gln Arg Glu Phe Lys Thr Leu Leu Gln Ala Val Asp  
                                   1140                                  1145                                  1150  
 Ala Ala Leu Asp Glu Ile Trp Thr Pro Glu Leu Arg Gly Asn Gly Leu  
                                   1155                                  1160                                  1165  
 Met Ala Asp His Leu Thr Gly Pro Asn Val Asp Tyr Leu Ala Leu Gln  
                                   1170                                  1175                                  1180

Lys Glu Gln Arg Tyr Ala Leu Leu Ser Pro Leu Lys Arg Phe Lys Pro  
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Gln Leu Ile Met Met Asp Trp Gln His Glu Ile Leu Gln  
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<212> PRT

<213> *Saccharomyces cerevisiae*

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Met Val Glu His Asp Lys Ser Gly Ser Lys Arg Gln Glu Leu Arg Ser  
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Asn Met Arg Asn Leu Ile Thr Leu Asn Lys Gly Lys Phe Lys Pro Thr  
 20 25 30

Ala Ser Thr Ala Glu Gly Asp Glu Asp Asp Leu Ser Phe Thr Leu Leu  
 35 40 45

Asp Ser Val Phe Asp Thr Leu Ser Asp Ser Ile Thr Cys Val Leu Gly  
 50 55 60

Ser Thr Asp Ile Gly Ala Ile Glu Val Gln Gln Phe Met Lys Asp Gly  
 65 70 75 80

Ser Arg Asn Val Leu Ala Ser Phe Asn Ile Gln Thr Phe Asp Asp Lys  
 85 90 95

Leu Leu Ser Phe Val His Phe Ala Asp Ile Asn Gln Leu Val Phe Val  
 100 105 110

Phe Glu Gln Gly Asp Ile Ile Thr Ala Thr Tyr Asp Pro Val Ser Leu  
 115 120 125

Asp Pro Ala Glu Thr Leu Ile Glu Ile Met Gly Thr Ile Asp Asn Gly  
 130 135 140

Ile Ala Ala Ala Gln Trp Ser Tyr Asp Glu Glu Thr Leu Ala Met Val  
 145 150 155 160

Thr Lys Asp Arg Asn Val Val Val Leu Ser Lys Leu Phe Glu Pro Ile  
 165 170 175

Ser Glu Tyr His Leu Glu Val Asp Asp Leu Lys Ile Ser Lys His Val  
 180 185 190

Thr Val Gly Trp Gly Lys Lys Glu Thr Gln Phe Arg Gly Lys Gly Ala  
 195 200 205

Arg Ala Met Glu Arg Glu Ala Leu Ala Ser Leu Lys Ala Ser Gly Leu  
 210 215 220

Val Gly Asn Gln Leu Arg Asp Pro Thr Met Pro Tyr Met Val Asp Thr  
 225 230 235 240

Gly	Asp	Val	Thr	Ala	Leu	Asp	Ser	His	Glu	Ile	Thr	Ile	Ser	Trp	Arg	
				245					250					255		
Gly	Asp	Cys	Asp	Tyr	Phe	Ala	Val	Ser	Ser	Val	Glu	Glu	Val	Pro	Asp	
			260					265					270			
Glu	Asp	Asp	Glu	Thr	Lys	Ser	Ile	Lys	Arg	Arg	Ala	Phe	Arg	Val	Phe	
		275					280					285				
Ser	Arg	Glu	Gly	Gln	Leu	Asp	Ser	Ala	Ser	Glu	Pro	Val	Thr	Gly	Met	
	290					295					300					
Glu	His	Gln	Leu	Ser	Trp	Lys	Pro	Gln	Gly	Ser	Leu	Ile	Ala	Ser	Ile	
305					310					315					320	
Gln	Arg	Lys	Thr	Asp	Leu	Gly	Glu	Glu	Asp	Ser	Val	Asp	Val	Ile	Phe	
				325					330					335		
Phe	Glu	Arg	Asn	Gly	Leu	Arg	His	Gly	Glu	Phe	Asp	Thr	Arg	Leu	Pro	
			340					345					350			
Leu	Asp	Glu	Lys	Val	Glu	Ser	Val	Cys	Trp	Asn	Ser	Asn	Ser	Glu	Ala	
		355					360					365				
Leu	Ala	Val	Val	Leu	Ala	Asn	Arg	Ile	Gln	Leu	Trp	Thr	Ser	Lys	Asn	
	370					375					380					
Tyr	His	Trp	Tyr	Leu	Lys	Gln	Glu	Leu	Tyr	Ala	Ser	Asp	Ile	Ser	Tyr	
385					390					395					400	
Val	Lys	Trp	His	Pro	Glu	Lys	Asp	Phe	Thr	Leu	Met	Phe	Ser	Asp	Ala	
				405					410					415		
Gly	Phe	Ile	Asn	Ile	Val	Asp	Phe	Ala	Tyr	Lys	Met	Ala	Gln	Gly	Pro	
			420					425					430			
Thr	Leu	Glu	Pro	Phe	Asp	Asn	Gly	Thr	Ser	Leu	Val	Val	Asp	Gly	Arg	
		435					440					445				
Thr	Val	Asn	Ile	Thr	Pro	Leu	Ala	Leu	Ala	Asn	Val	Pro	Pro	Pro	Met	
	450					455					460					
Tyr	Tyr	Arg	Asp	Phe	Glu	Thr	Pro	Gly	Asn	Val	Leu	Asp	Val	Ala	Cys	
465					470					475					480	
Ser	Phe	Ser	Asn	Glu	Ile	Tyr	Ala	Ala	Ile	Asn	Lys	Asp	Val	Leu	Ile	
			485						490					495		
Phe	Ala	Ala	Val	Pro	Ser	Ile	Glu	Glu	Met	Lys	Lys	Gly	Lys	His	Pro	
			500					505					510			
Ser	Ile	Val	Cys	Glu	Phe	Pro	Lys	Ser	Glu	Phe	Thr	Ser	Glu	Val	Asp	
		515					520					525				
Ser	Leu	Arg	Gln	Val	Ala	Phe	Ile	Asn	Asp	Ser	Ile	Val	Gly	Val	Leu	
	530					535					540					

Leu	Asp	Thr	Asp	Asn	Leu	Ser	Arg	Ile	Ala	Leu	Leu	Asp	Ile	Gln	Asp	
545					550					555					560	
Ile	Thr	Gln	Pro	Thr	Leu	Ile	Thr	Ile	Val	Glu	Val	Tyr	Asp	Lys	Ile	
				565					570					575		
Val	Leu	Leu	Ser	Ser	Asp	Phe	Asp	Tyr	Asn	His	Leu	Val	Tyr	Glu	Thr	
			580					585					590			
Arg	Asp	Gly	Thr	Val	Cys	Gln	Leu	Asp	Ala	Glu	Gly	Gln	Leu	Met	Glu	
		595					600					605				
Ile	Thr	Lys	Phe	Pro	Gln	Leu	Val	Arg	Asp	Phe	Arg	Val	Lys	Arg	Val	
	610					615					620					
His	Asn	Thr	Ser	Ala	Glu	Asp	Asp	Asp	Asn	Trp	Ser	Ala	Glu	Ser	Ser	
625					630					635					640	
Glu	Leu	Val	Ala	Phe	Gly	Ile	Thr	Asn	Asn	Gly	Lys	Leu	Phe	Ala	Asn	
				645					650					655		
Gln	Val	Leu	Leu	Ala	Ser	Ala	Val	Thr	Ser	Leu	Glu	Ile	Thr	Asp	Ser	
			660					665						670		
Phe	Leu	Leu	Phe	Thr	Thr	Ala	Gln	His	Asn	Leu	Gln	Phe	Val	His	Leu	
			675				680					685				
Asn	Ser	Thr	Asp	Phe	Lys	Pro	Leu	Pro	Leu	Val	Glu	Glu	Gly	Val	Glu	
	690					695					700					
Asp	Glu	Arg	Val	Arg	Ala	Ile	Glu	Arg	Gly	Ser	Ile	Leu	Val	Ser	Val	
705					710					715					720	
Ile	Pro	Ser	Lys	Arg	Ser	Val	Val	Leu	Gln	Ala	Thr	Arg	Gly	Asn	Leu	
				725					730					735		
Glu	Thr	Ile	Tyr	Pro	Arg	Ile	Met	Val	Leu	Ala	Glu	Val	Arg	Lys	Asn	
			740					745						750		
Ile	Met	Ala	Lys	Arg	Tyr	Lys	Glu	Ala	Phe	Ile	Val	Cys	Arg	Thr	His	
		755					760					765				
Arg	Ile	Asn	Leu	Asp	Ile	Leu	His	Asp	Tyr	Ala	Pro	Glu	Leu	Phe	Ile	
	770					775					780					
Glu	Asn	Leu	Glu	Val	Phe	Ile	Asn	Gln	Ile	Gly	Arg	Val	Asp	Tyr	Leu	
785					790					795					800	
Asn	Leu	Phe	Ile	Ser	Cys	Leu	Ser	Glu	Asp	Asp	Val	Thr	Lys	Thr	Lys	
				805					810					815		
Tyr	Lys	Glu	Thr	Leu	Tyr	Ser	Gly	Ile	Ser	Lys	Ser	Phe	Gly	Met	Glu	
			820					825					830			
Pro	Ala	Pro	Leu	Thr	Glu	Met	Gln	Ile	Tyr	Met	Lys	Lys	Lys	Met	Phe	
		835					840					845				

Asp	Pro	Lys	Thr	Ser	Lys	Val	Asn	Lys	Ile	Cys	Asp	Ala	Val	Leu	Asn
850						855					860				
Val	Leu	Leu	Ser	Asn	Pro	Glu	Tyr	Lys	Lys	Lys	Tyr	Leu	Gln	Thr	Ile
865					870					875					880
Ile	Thr	Ala	Tyr	Ala	Ser	Gln	Asn	Pro	Gln	Asn	Leu	Ser	Ala	Ala	Leu
				885					890					895	
Lys	Leu	Ile	Ser	Glu	Leu	Glu	Asn	Ser	Glu	Glu	Lys	Asp	Ser	Cys	Val
			900					905					910		
Thr	Tyr	Leu	Cys	Phe	Leu	Gln	Asp	Val	Asn	Val	Val	Tyr	Lys	Ser	Ala
		915					920					925			
Leu	Ser	Leu	Tyr	Asp	Val	Ser	Leu	Ala	Leu	Leu	Val	Ala	Gln	Lys	Ser
	930					935					940				
Gln	Met	Asp	Pro	Arg	Glu	Tyr	Leu	Pro	Phe	Leu	Gln	Glu	Leu	Gln	Asp
945					950					955					960
Asn	Glu	Pro	Leu	Arg	Arg	Lys	Phe	Leu	Ile	Asp	Asp	Tyr	Leu	Gly	Asn
				965					970					975	
Tyr	Glu	Lys	Ala	Leu	Glu	His	Leu	Ser	Glu	Ile	Asp	Lys	Asp	Gly	Asn
			980					985					990		
Val	Ser	Glu	Glu	Val	Ile	Asp	Tyr	Val	Glu	Ser	His	Asp	Leu	Tyr	Lys
		995					1000					1005			
His	Gly	Leu	Ala	Leu	Tyr	Arg	Tyr	Asp	Ser	Glu	Lys	Gln	Asn	Val	Ile
1010						1015					1020				
Tyr	Asn	Ile	Tyr	Ala	Lys	His	Leu	Ser	Ser	Asn	Gln	Met	Tyr	Thr	Asp
1025					1030					1035					1040
Ala	Ala	Val	Ala	Tyr	Glu	Met	Leu	Gly	Lys	Leu	Lys	Glu	Ala	Met	Gly
				1045					1050					1055	
Ala	Tyr	Gln	Ser	Ala	Lys	Arg	Trp	Arg	Glu	Ala	Met	Ser	Ile	Ala	Val
			1060					1065					1070		
Gln	Lys	Phe	Pro	Glu	Glu	Val	Glu	Ser	Val	Ala	Glu	Glu	Leu	Ile	Ser
		1075					1080					1085			
Ser	Leu	Thr	Phe	Glu	His	Arg	Tyr	Val	Asp	Ala	Ala	Asp	Ile	Gln	Leu
		1090				1095					1100				
Glu	Tyr	Leu	Asp	Asn	Val	Lys	Glu	Ala	Val	Ala	Leu	Tyr	Cys	Lys	Ala
1105					1110					1115					1120
Tyr	Arg	Tyr	Asp	Ile	Ala	Ser	Leu	Val	Ala	Ile	Lys	Ala	Lys	Lys	Asp
				1125					1130					1135	
Glu	Leu	Leu	Glu	Glu	Val	Val	Asp	Pro	Gly	Leu	Gly	Glu	Gly	Phe	Gly
			1140					1145					1150		

Ile Ile Ala Glu Leu Leu Ala Asp Cys Lys Gly Gln Ile Asn Ser Gln  
 1155 1160 1165  
 Leu Arg Arg Leu Arg Glu Leu Arg Ala Lys Lys Glu Glu Asn Pro Tyr  
 1170 1175 1180  
 Ala Phe Tyr Gly Gln Glu Thr Glu Gln Ala Asp Asp Val Ser Val Ala  
 1185 1190 1195 1200  
 Pro Ser Glu Thr Ser Thr Gln Glu Ser Phe Phe Thr Arg Tyr Thr Gly  
 1205 1210 1215  
 Lys Thr Gly Gly Thr Ala Lys Thr Gly Ala Ser Arg Arg Thr Ala Lys  
 1220 1225 1230  
 Asn Lys Arg Arg Glu Glu Arg Lys Arg Ala Arg Gly Lys Lys Gly Thr  
 1235 1240 1245  
 Ile Tyr Glu Glu Glu Tyr Leu Val Gln Ser Val Gly Arg Leu Ile Glu  
 1250 1255 1260  
 Arg Leu Asn Gln Thr Lys Pro Asp Ala Val Arg Val Val Glu Gly Leu  
 1265 1270 1275 1280  
 Cys Arg Arg Asn Met Arg Glu Gln Ala His Gln Ile Gln Lys Asn Phe  
 1285 1290 1295  
 Val Glu Val Leu Asp Leu Leu Lys Ala Asn Val Lys Glu Ile Tyr Ser  
 1300 1305 1310  
 Ile Ser Glu Lys Asp Arg Glu Arg Val Asn Glu Asn Gly Glu Val Tyr  
 1315 1320 1325  
 Tyr Ile Pro Glu Ile Pro Val Pro Glu Ile His Asp Phe Pro Lys Ser  
 1330 1335 1340  
 His Ile Val Asp Phe  
 1345

&lt;210&gt; 8

&lt;211&gt; 1319

&lt;212&gt; PRT

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 8

Met Lys Asn Leu Lys Leu Phe Ser Glu Val Pro Gln Asn Ile Gln Leu  
 1 5 10 15  
 His Ser Thr Glu Glu Val Val Gln Phe Ala Ala Thr Asp Ile Asp Gln  
 20 25 30  
 Ser Arg Leu Phe Phe Ala Ser Ser Ala Asn Phe Val Tyr Ala Leu Gln  
 35 40 45  
 Leu Ser Ser Phe Gln Asn Glu Ser Ala Gly Ala Lys Ser Ala Met Pro  
 50 55 60



Val	Glu	Val	Cys	Ser	Ile	Asp	Ile	Glu	Pro	Gly	Asp	Phe	Ile	Thr	Ala	
65					70					75					80	
Phe	Asp	Tyr	Leu	Ala	Glu	Lys	Glu	Ser	Leu	Leu	Ile	Gly	Thr	Ser	His	
				85					90					95		
Gly	Leu	Leu	Leu	Val	His	Asn	Val	Glu	Ser	Asp	Val	Thr	Glu	Leu	Val	
			100					105					110			
Gly	Asn	Ile	Glu	Gly	Gly	Val	Lys	Cys	Ile	Ser	Pro	Asn	Pro	Thr	Gly	
		115					120					125				
Asp	Leu	Leu	Gly	Leu	Ile	Thr	Gly	Leu	Gly	Gln	Leu	Ile	Val	Met	Thr	
	130					135					140					
Tyr	Asp	Trp	Ala	Leu	Met	Tyr	Glu	Lys	Ala	Leu	Gly	Glu	Val	Pro	Glu	
145					150					155					160	
Gly	Gly	Tyr	Val	Arg	Glu	Thr	Asn	Asp	Leu	Ser	Val	Asn	Cys	Gly	Gly	
				165					170					175		
Ile	Ser	Ile	Ser	Trp	Arg	Gly	Asp	Gly	Lys	Tyr	Phe	Ala	Thr	Met	Gly	
			180					185					190			
Glu	Val	Tyr	Glu	Ser	Gly	Cys	Met	Ser	Lys	Lys	Ile	Lys	Ile	Trp	Glu	
		195					200					205				
Ser	Asp	Ser	Gly	Ala	Leu	Gln	Ser	Ser	Ser	Glu	Thr	Lys	Glu	Phe	Thr	
	210					215					220					
Gln	Gly	Ile	Leu	Glu	Trp	Met	Pro	Ser	Gly	Ala	Lys	Ile	Ala	Ala	Val	
225					230					235					240	
Tyr	Lys	Arg	Lys	Ser	Asp	Asp	Ser	Ser	Pro	Ser	Ile	Ala	Phe	Phe	Glu	
				245					250					255		
Arg	Asn	Gly	Leu	Glu	Arg	Ser	Ser	Phe	Arg	Ile	Gly	Glu	Pro	Glu	Asp	
			260					265					270			
Ala	Thr	Glu	Ser	Cys	Glu	Asn	Leu	Lys	Trp	Asn	Ser	Ala	Ser	Asp	Leu	
		275					280					285				
Leu	Ala	Gly	Val	Val	Ser	Cys	Lys	Thr	Tyr	Asp	Ala	Ile	Arg	Val	Trp	
	290					295					300					
Phe	Phe	Ser	Asn	Asn	His	Trp	Tyr	Leu	Lys	Gln	Glu	Ile	Arg	Tyr	Pro	
305					310					315					320	
Arg	Glu	Ala	Gly	Val	Thr	Val	Met	Trp	Asp	Pro	Thr	Lys	Pro	Leu	Gln	
				325					330					335		
Leu	Ile	Cys	Trp	Thr	Leu	Ser	Gly	Gln	Val	Ser	Val	Arg	His	Phe	Met	
			340					345					350			
Trp	Val	Thr	Ala	Val	Met	Glu	Asp	Ser	Thr	Ala	Phe	Val	Ile	Asp	Asn	
		355					360					365				

Ser	Lys	Ile	Leu	Val	Thr	Pro	Leu	Ser	Leu	Ser	Leu	Met	Pro	Pro	Pro
370						375					380				
Met	Tyr	Leu	Phe	Ser	Leu	Ser	Phe	Ser	Ser	Ala	Val	Arg	Asp	Ile	Ala
385					390					395					400
Tyr	Tyr	Ser	Arg	Asn	Ser	Lys	Asn	Cys	Leu	Ala	Val	Phe	Leu	Ser	Asp
				405					410					415	
Gly	Asn	Leu	Ser	Phe	Val	Glu	Phe	Pro	Ala	Pro	Asn	Thr	Trp	Glu	Asp
			420					425					430		
Leu	Glu	Gly	Lys	Asp	Phe	Ser	Val	Glu	Ile	Ser	Asp	Cys	Lys	Thr	Ala
		435					440					445			
Leu	Gly	Ser	Phe	Val	His	Leu	Leu	Trp	Leu	Asp	Val	His	Ser	Leu	Leu
	450					455					460				
Cys	Val	Ser	Ala	Tyr	Gly	Ser	Ser	His	Asn	Lys	Cys	Leu	Ser	Ser	Gly
465					470					475					480
Gly	Tyr	Asp	Thr	Glu	Leu	His	Gly	Ser	Tyr	Leu	Gln	Glu	Val	Glu	Val
				485					490					495	
Val	Cys	His	Glu	Asp	His	Val	Pro	Asp	Gln	Val	Thr	Cys	Ser	Gly	Phe
			500					505					510		
Lys	Ala	Ser	Ile	Thr	Phe	Gln	Thr	Leu	Leu	Glu	Ser	Pro	Val	Leu	Ala
		515					520					525			
Leu	Ala	Trp	Asn	Pro	Ser	Lys	Arg	Asp	Ser	Ala	Phe	Val	Glu	Phe	Glu
	530					535					540				
Gly	Gly	Lys	Val	Leu	Gly	Tyr	Ala	Ser	Arg	Ser	Glu	Ile	Met	Glu	Thr
545					550					555					560
Arg	Ser	Ser	Asp	Asp	Ser	Val	Cys	Phe	Pro	Ser	Thr	Cys	Pro	Trp	Val
				565					570					575	
Arg	Val	Ala	Gln	Val	Asp	Ala	Ser	Gly	Val	His	Lys	Pro	Leu	Ile	Cys
			580					585					590		
Gly	Leu	Asp	Asp	Met	Gly	Arg	Leu	Ser	Ile	Asn	Gly	Lys	Asn	Leu	Cys
		595					600					605			
Asn	Asn	Cys	Ser	Ser	Phe	Ser	Phe	Tyr	Ser	Glu	Leu	Ala	Asn	Glu	Val
						615					620				
Val	Thr	His	Leu	Ile	Ile	Leu	Thr	Lys	Gln	Asp	Phe	Leu	Phe	Ile	Val
625					630					635					640
Asp	Thr	Lys	Asp	Val	Leu	Asn	Gly	Asp	Val	Ala	Leu	Gly	Asn	Val	Phe
				645					650					655	
Phe	Val	Ile	Asp	Gly	Arg	Arg	Arg	Asp	Glu	Glu	Asn	Met	Ser	Tyr	Val
			660					665						670	

Asn	Ile	Trp	Glu	Arg	Gly	Ala	Lys	Val	Ile	Gly	Val	Leu	Asn	Gly	Asp	675	680	685	
Glu	Ala	Ala	Val	Ile	Leu	Gln	Thr	Met	Arg	Gly	Asn	Leu	Glu	Cys	Ile	690	695	700	
Tyr	Pro	Arg	Lys	Leu	Val	Leu	Ser	Ser	Ile	Thr	Asn	Ala	Leu	Ala	Gln	705	710	715	720
Gln	Arg	Phe	Lys	Asp	Ala	Phe	Asn	Leu	Val	Arg	Arg	His	Arg	Ile	Asp	725	730	735	
Phe	Asn	Val	Ile	Val	Asp	Leu	Tyr	Gly	Trp	Gln	Ala	Phe	Leu	Gln	Ser	740	745	750	
Ala	Val	Ala	Phe	Val	Glu	Gln	Val	Asn	Asn	Leu	Asn	His	Val	Thr	Glu	755	760	765	
Phe	Val	Cys	Ala	Met	Lys	Asn	Glu	Asp	Val	Thr	Glu	Thr	Leu	Tyr	Lys	770	775	780	
Lys	Phe	Ser	Phe	Ser	Lys	Lys	Gly	Asp	Glu	Val	Phe	Arg	Val	Lys	Asp	785	790	795	800
Ser	Cys	Ser	Asn	Lys	Val	Ser	Ser	Val	Leu	Gln	Ala	Ile	Arg	Lys	Ala	805	810	815	
Leu	Glu	Glu	His	Ile	Pro	Glu	Ser	Pro	Ser	Arg	Glu	Leu	Cys	Ile	Leu	820	825	830	
Thr	Thr	Leu	Ala	Arg	Ser	Asp	Pro	Pro	Ala	Ile	Glu	Glu	Ser	Leu	Leu	835	840	845	
Arg	Ile	Lys	Ser	Val	Arg	Glu	Met	Glu	Leu	Leu	Asn	Ser	Ser	Asp	Asp	850	855	860	
Ile	Arg	Lys	Lys	Ser	Cys	Pro	Ser	Ala	Glu	Glu	Ala	Leu	Lys	His	Leu	865	870	875	880
Leu	Trp	Leu	Leu	Asp	Ser	Glu	Ala	Val	Phe	Glu	Ala	Ala	Leu	Gly	Leu	885	890	895	
Tyr	Asp	Leu	Asn	Leu	Ala	Ala	Ile	Val	Ala	Leu	Asn	Ser	Gln	Arg	Asp	900	905	910	
Pro	Lys	Glu	Phe	Leu	Pro	Tyr	Leu	Gln	Glu	Leu	Glu	Lys	Met	Pro	Glu	915	920	925	
Ser	Leu	Met	His	Phe	Lys	Ile	Asp	Ile	Lys	Leu	Gln	Arg	Phe	Asp	Ser	930	935	940	
Ala	Leu	Arg	Asn	Ile	Val	Ser	Ala	Gly	Val	Gly	Tyr	Phe	Pro	Asp	Cys	945	950	955	960
Met	Asn	Leu	Ile	Lys	Lys	Asn	Pro	Gln	Leu	Phe	Pro	Leu	Gly	Leu	Leu	965	970	975	

Leu Ile Thr Asp Pro Glu Lys Lys Leu Val Val Leu Glu Ala Trp Ala  
 980 985 990  
 Asp His Leu Ile Asp Glu Lys Arg Phe Glu Asp Ala Ala Thr Thr Tyr  
 995 1000 1005  
 Leu Cys Cys Cys Lys Leu Glu Lys Ala Ser Lys Ala Tyr Arg Glu Cys  
 1010 1015 1020  
 Gly Asp Trp Ser Gly Val Leu Arg Val Gly Ala Leu Met Lys Leu Gly  
 1025 1030 1035 1040  
 Lys Asp Glu Ile Leu Lys Leu Ala Tyr Glu Leu Cys Glu Glu Val Asn  
 1045 1050 1055  
 Ala Leu Gly Lys Pro Ala Glu Ala Ala Lys Ile Ala Leu Glu Tyr Cys  
 1060 1065 1070  
 Ser Asp Ile Ser Gly Gly Ile Ser Leu Leu Ile Asn Ala Arg Glu Trp  
 1075 1080 1085  
 Glu Glu Ala Leu Arg Val Ala Phe Leu His Thr Ala Asp Asp Arg Ile  
 1090 1095 1100  
 Ser Val Val Lys Ser Ser Ala Leu Glu Cys Ala Ser Gly Leu Val Ser  
 1105 1110 1115 1120  
 Glu Phe Lys Glu Ser Ile Glu Lys Val Gly Lys Tyr Leu Thr Arg Tyr  
 1125 1130 1135  
 Leu Ala Val Arg Gln Arg Arg Leu Leu Leu Ala Ala Lys Leu Lys Ser  
 1140 1145 1150  
 Glu Glu Arg Ser Val Val Asp Leu Asp Asp Asp Thr Ala Ser Glu Ala  
 1155 1160 1165  
 Ser Ser Asn Leu Ser Gly Met Ser Ala Tyr Thr Leu Gly Thr Arg Arg  
 1170 1175 1180  
 Gly Ser Ala Ala Ser Val Ser Ser Ser Asn Ala Thr Ser Arg Ala Arg  
 1185 1190 1195 1200  
 Asp Leu Arg Arg Gln Arg Lys Ser Gly Lys Ile Arg Ala Gly Ser Ala  
 1205 1210 1215  
 Gly Glu Glu Met Ala Leu Val Asp His Leu Lys Gly Met Arg Met Thr  
 1220 1225 1230  
 Asp Gly Gly Lys Arg Glu Leu Lys Ser Leu Leu Ile Cys Leu Val Thr  
 1235 1240 1245  
 Leu Gly Glu Met Glu Ser Ala Gln Lys Leu Gln Gln Thr Ala Glu Asn  
 1250 1255 1260  
 Phe Gln Val Ser Gln Val Ala Ala Val Glu Leu Ala His Asp Thr Val  
 1265 1270 1275 1280

Ser Ser Glu Ser Val Asp Glu Glu Val Tyr Cys Phe Glu Arg Tyr Ala  
 1285 1290 1295

Gln Lys Thr Arg Ser Thr Ala Arg Asp Ser Asp Ala Phe Ser Trp Met  
 1300 1305 1310

Leu Lys Val Phe Ile Ser Pro  
 1315

<210> 9

<211> 1178

<212> PRT

<213> Caenorhabditis elegans

<400> 9

Met Lys Asn Leu Gln Ile Gly Ser Val Lys Thr Phe Glu Asn Pro Glu  
 1 5 10 15

Ile Ala Gly Ala Asp Asp Phe Ala Val His Pro Ile Leu Gln Thr Ile  
 20 25 30

Ala Val Ser Thr Lys Asn Glu Leu Leu Leu Leu Glu Asn Asn Leu Ile  
 35 40 45

Ser Ser Thr Ile Lys Trp Ala Glu Gln Arg Arg Glu Leu Glu Val Ile  
 50 55 60

Ser Leu Ser Phe Arg Thr Asp Gly Asn Gln Ile Val Val Ile Leu Ala  
 65 70 75 80

Asp Gly Arg Ala Leu Ile Val Glu Asp Gly Glu Val Met Asp Leu Glu  
 85 90 95

Ile Ala Glu Leu Thr Asp Thr Thr Val Ser Ala Ala Glu Trp Thr Ala  
 100 105 110

Asp Glu Gln Thr Leu Ala Leu Ala Asp Asn Gln Thr Leu Tyr Leu Ala  
 115 120 125

Asp Ser Ser Leu Val Pro Phe Ala Glu Arg Pro Leu Ile Phe Ser Glu  
 130 135 140

Asn Glu Arg Lys Ser Ala Pro Val Asn Val Gly Trp Gly Ser Glu Ser  
 145 150 155 160

Thr Gln Phe Arg Gly Ser Ala Gly Lys Leu Lys Pro Gly Glu Lys Ile  
 165 170 175

Glu Lys Glu Lys Glu Gln Ile Glu Gln His Ser Arg Lys Thr Ser Val  
 180 185 190

His Trp Arg Trp Asp Gly Glu Ile Val Ala Val Ser Phe Tyr Ser Ser  
 195 200 205

Gln Asn Asp Thr Arg Asn Leu Thr Val Phe Asp Arg Asn Gly Glu Ile  
 210 215 220

Leu	Asn	Asn	Met	Asn	Ile	Arg	Asn	Ile	Tyr	Leu	Ser	His	Cys	Phe	Ala	225	230	235	240
His	Lys	Pro	Asn	Ala	Asn	Leu	Leu	Cys	Ser	Ala	Ile	Gln	Glu	Asn	Gly	245	250	255	
Ser	Asp	Asp	Arg	Ile	Val	Ile	Tyr	Glu	Arg	Asn	Gly	Glu	Thr	Arg	Asn	260	265	270	
Ser	Tyr	Val	Val	Lys	Trp	Pro	Ala	Asn	Gln	Ile	Glu	Asp	Arg	Arg	Ile	275	280	285	
Ile	Glu	Lys	Ile	Glu	Trp	Asn	Ser	Thr	Gly	Thr	Ile	Leu	Ser	Met	Gln	290	295	300	
Thr	Ser	Leu	Gly	Lys	Lys	His	Gln	Leu	Glu	Phe	Trp	His	Leu	Ser	Asn	305	310	315	320
Tyr	Glu	Phe	Thr	Arg	Lys	Cys	Tyr	Trp	Lys	Phe	Ser	Glu	Ser	Ile	Ile	325	330	335	
Trp	Lys	Trp	Ser	Thr	Val	Glu	Cys	Gln	Asn	Ile	Glu	Val	Leu	Leu	Glu	340	345	350	
Ser	Gly	Gln	Phe	Phe	Ser	Val	His	Ile	Thr	Pro	Thr	Ala	Ser	Phe	Ser	355	360	365	
Asp	Val	Ile	Ser	Gln	Asn	Val	Val	Val	Ala	Thr	Asp	Glu	Leu	Arg	Met	370	375	380	
Tyr	Ser	Leu	Cys	Arg	Arg	Val	Val	Pro	Pro	Pro	Met	Cys	Asp	Tyr	Ser	385	390	395	400
Ile	Gln	Cys	Leu	Ser	Asp	Ile	Val	Ala	Tyr	Thr	Thr	Ser	Thr	His	His	405	410	415	
Val	His	Val	Ile	Thr	Ser	Asp	Trp	Lys	Ile	Ile	Ser	Cys	Met	Leu	Phe	420	425	430	
Phe	Lys	Lys	Lys	Lys	Arg	Asn	Tyr	Ser	Asn	Pro	Phe	Phe	Arg	Lys	Lys	435	440	445	
Tyr	Ile	Leu	Glu	Ile	Leu	Lys	Val	Pro	Ser	His	Lys	Thr	Tyr	Phe	Ala	450	455	460	
Cys	Phe	Ala	Val	Ser	Gln	Asp	Thr	Asp	Gly	Tyr	Lys	Phe	Asn	Ser	Asp	465	470	475	480
Arg	Ala	Ser	Ile	Asp	Glu	Val	Leu	His	Thr	Glu	Val	Thr	Glu	Gly	Ile	485	490	495	
Ile	Cys	Gly	Phe	Val	Tyr	Asp	Glu	Pro	Ser	Glu	Ser	Tyr	Ile	Ile	Trp	500	505	510	
Asn	Val	Ser	His	Gly	Lys	His	Gln	Ile	Ser	Arg	Val	Gly	Ala	Asn	Pro	515	520	525	

Glu Lys Ile Phe Glu Gly Glu Asn Ile Gly Trp Ile Gly Val Asn Pro  
 530 535 540  
 Ser Asn Lys His Val Glu Ile Ala Ser Asn Asp Gly Lys Phe Ile Asp  
 545 550 555 560  
 Leu Asn Thr Lys Glu Glu Leu Phe Lys Ile Asp Lys Phe Glu Ser Thr  
 565 570 575  
 Glu Val His Phe Ile Gln Val Cys His Gly Ile Leu Asn His His Val  
 580 585 590  
 Ile Gln Val Asp Asn Ser Met Leu Phe Leu Asp Ser Glu Arg Val Ser  
 595 600 605  
 Gln Asp Ala Ile Ser Ile Leu Thr Arg Gly Ser Asp Ile Leu Leu Ile  
 610 615 620  
 Asp Phe Asp Asn Lys Leu Arg Phe Ile Asp Ala Glu Ser Gly Lys Thr  
 625 630 635 640  
 Leu Glu Asp Val Arg Asn Val Glu Ala Gly Cys Glu Leu Val Ala Cys  
 645 650 655  
 Asp Ser Gln Ser Ala Asn Val Ile Leu Gln Ala Ala Arg Gly Asn Leu  
 660 665 670  
 Glu Thr Ile Gln Pro Arg Arg Tyr Val Met Ala His Thr Arg Asp Leu  
 675 680 685  
 Leu Asp Arg Lys Glu Tyr Ile Ala Ser Phe Lys Trp Met Lys Lys His  
 690 695 700  
 Arg Val Asp Met Ser Phe Ala Met Lys Tyr Lys Gly Asp Asp Leu Glu  
 705 710 715 720  
 Asp Asp Ile Pro Ile Trp Leu Lys Thr Ser Asn Asp Ser Gln Phe Leu  
 725 730 735  
 Glu Gln Leu Leu Ile Ser Cys Thr Glu Val Phe Glu Asp Ala Gly Ser  
 740 745 750  
 Ser Leu Cys Met Thr Val Ala Arg Tyr Val Arg Asp Leu Ser Asp Ala  
 755 760 765  
 Glu Lys Thr Lys Met Phe Pro Leu Leu Leu Thr Ala Leu Leu Ser Ala  
 770 775 780  
 Arg Ser Lys Pro Ser Lys Val Asn Asp Cys Leu Lys Glu Val Gln Glu  
 785 790 795 800  
 His Val Glu Lys Ile Ala Asp Arg Lys Asp Val Phe Thr Arg Asn Ser  
 805 810 815  
 Leu His His Ile Ser Phe Phe Val Pro Ala Lys Glu Leu Phe Asn Cys  
 820 825 830

Ala Leu Ser Thr Tyr Asp Leu Lys Leu Ala Gln Gln Val Ala Glu Ala  
 835 840 845  
 Ser Asn Tyr Asp Pro Lys Glu Tyr Leu Pro Val Leu Asn Lys Leu Asn  
 850 855 860  
 Arg Val Met Cys Thr Leu Glu Arg Gln Tyr Arg Ile Asn Val Val Arg  
 865 870 875 880  
 Glu Ala Trp Ile Asp Ala Val Ser Ser Leu Phe Leu Leu Asp Ser Ser  
 885 890 895  
 Lys Glu Arg Gly Ser Glu Glu Thr Trp Trp Asn Asp Ile Glu Asp Ile  
 900 905 910  
 Ile Ile Gln Arg Glu Lys Leu Tyr Gln Asp Ala Leu Thr Leu Val Lys  
 915 920 925  
 Pro Gly Asp Arg Arg Tyr Lys Gln Cys Cys Glu Leu Tyr Ala Glu Leu  
 930 935 940  
 Glu Arg Lys Val His Trp Arg Glu Ala Ala Leu Phe Tyr Glu Leu Ser  
 945 950 955 960  
 Gly Asn Ser Glu Lys Thr Leu Lys Cys Trp Glu Met Ser Arg Asp Val  
 965 970 975  
 Asp Gly Leu Ala Ala Ser Ala Arg Arg Leu Ala Val Asp Ala Gly Lys  
 980 985 990  
 Leu Lys Ile His Ala Ile Lys Met Ser Thr Thr Leu Arg Glu Ala Arg  
 995 1000 1005  
 Gln Pro Lys Glu Leu Ala Lys Ala Leu Lys Leu Ala Gly Ser Ser Ser  
 1010 1015 1020  
 Thr Gln Ile Val His Val Leu Cys Asp Ala Phe Glu Trp Leu Asp Ala  
 1025 1030 1035 1040  
 Ser Arg Glu Val Glu Val Gly Lys Glu Glu Ala Leu Lys Lys Ala Ala  
 1045 1050 1055  
 Leu Ser Arg Asn Asp Gln Val Leu Met Asp Leu Glu Arg Arg Lys Thr  
 1060 1065 1070  
 Glu Phe Glu Asn Tyr Lys Lys Arg Leu Ala Val Val Arg Glu Asn Lys  
 1075 1080 1085  
 Leu Lys Arg Val Glu Gln Phe Ala Ala Gly Glu Val Asp Asp Leu Arg  
 1090 1095 1100  
 Asp Asp Ile Ser Val Ile Ser Ser Ile Ser Ser Arg Ser Gly Ser Ser  
 1105 1110 1115 1120  
 Lys Val Ser Met Ala Ser Thr Val Arg Arg Lys Gln Ile Glu Lys Lys  
 1125 1130 1135



Lys Ser Ser Leu Lys Glu Gly Gly Glu Tyr Glu Asp Ser Ala Leu Leu  
                   1140                                  1145                                  1150

Asn Val Leu Ser Glu Asn Tyr Arg Trp Leu Glu Asn Ile Gly Ser Glu  
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Phe Cys Phe Pro Trp Asn Phe Asn Ile Leu  
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